DTC	P0976	Shift Solenoid "B" Control Circuit Low (Shift Solenoid Valve S2)

DTC	P0977	Shift Solenoid "B" Control Circuit High (Shift Solenoid Valve S2)

DESCRIPTION

Refer to DTC P0973 (see page AX-67).

DTC No.	DTC Detection Condition	Trouble Area
P0976	ECM detects short in solenoid valve S2 circuit 2 times when solenoid valve S2 is operated (1 trip detection logic)	• Short in shift solenoid valve S2 circuit • Shift solenoid valve S2 • ECM
P0977	ECM detects open in solenoid valve S2 circuit 2 times when solenoid valve S2 is not operated (1 trip detection logic)	• Open in shift solenoid valve S2 circuit • Shift solenoid valve S2 • ECM

MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ON/OFF. When there is an open or short circuit in any shift solenoid valve circuit, the ECM detects the problem, illuminates the MIL and stores the DTC. Also, the ECM performs the fail-safe function and turns the other normal shift solenoid valves ON/OFF. In case of a short circuit, the ECM stop sending the current to the short circuited solenoid.

MONITOR STRATEGY

Related DTCs	P0976: Shift solenoid valve S2/Range check (Low resistance) P0977: Shift solenoid valve S2/Range check (High resistance)
Required sensors/Components	Shift solenoid valve S2
Frequency of operation	Continuous
Duration	2 times or more
MIL operation	1 driving cycle
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

P0976: Range check (Low resistance)

The monitor will run whenever the following DTCs are not present	None
Solenoid	ON
Time after solenoid OFF to ON	More than 0.008 sec.

P0977: Range check (High resistance)

The monitor will run whenever the following DTCs are not present	None
Solenoid	OFF
Time after solenoid ON to OFF	More than 0.008 sec.

TYPICAL MALFUNCTION THRESHOLDS

P0976: Range check (Low resistance)

Intelligent power MOS diagnosis fail signals detected while the solenoid is operated	Fail at solenoid resistance: 8 Ω or less

P0977: Range check (High resistance)

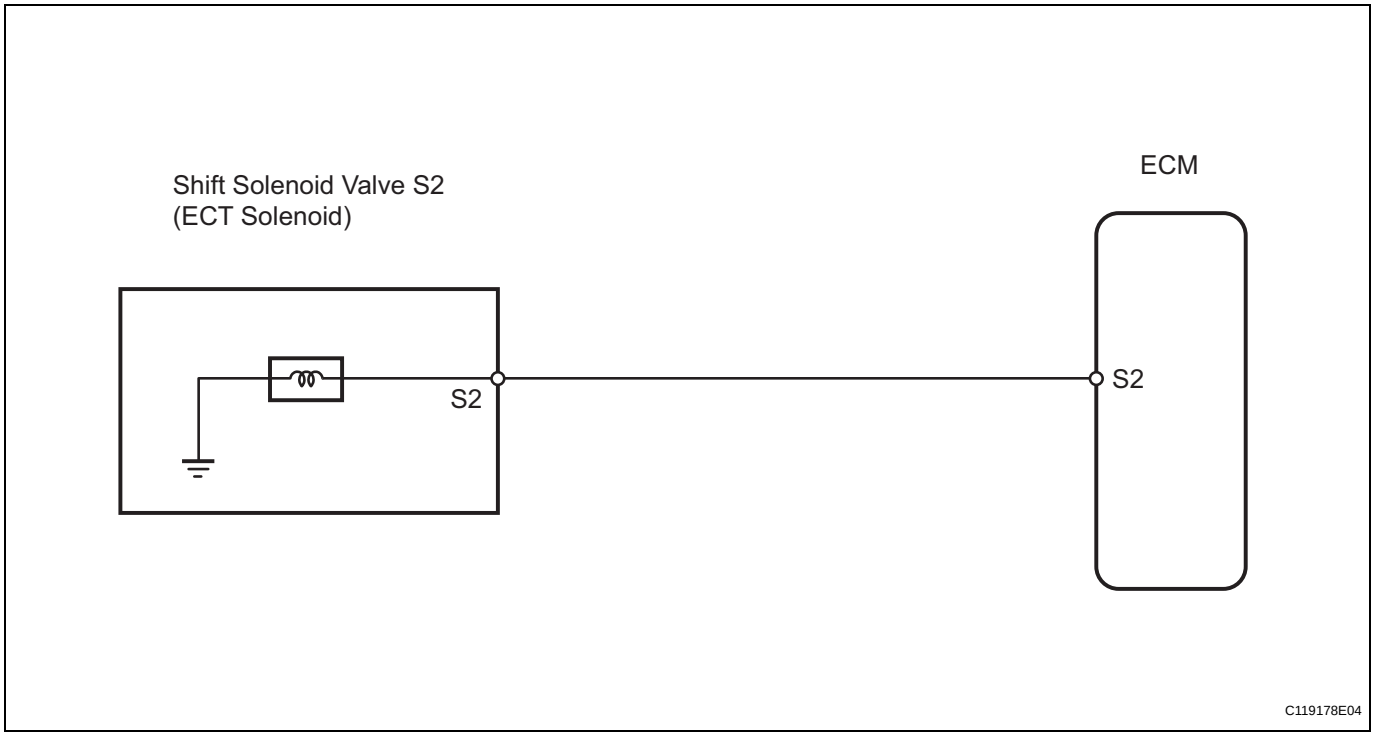
Intelligent power MOS diagnosis fail signals detected while the solenoid is not operated	Fail at solenoid resistance: 100 kΩ or more

AX

COMPONENT OPERATING RANGE

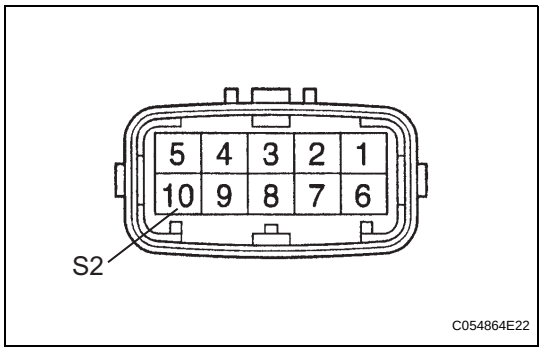
Shift solenoid valve S2	Resistance: 11 to 15 Ω at 20°C (68°F)

WIRING DIAGRAM



AX

1	INSPECT TRANSMISSION WIRE (SHIFT SOLENOID VALVE S2)



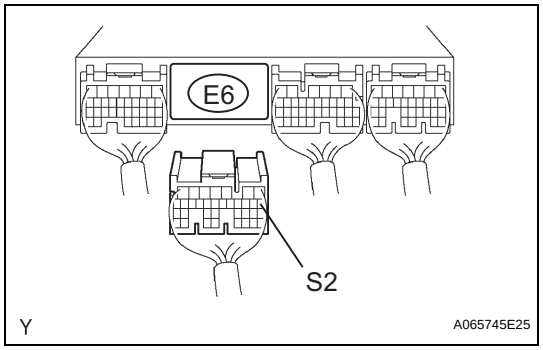
(a) Disconnect the E1 wire connector.
(b) Measure the resistance of the transmission wire.
Standard resistance

Tester Connection	Condition	Specified Condition
10 (S2) - Body ground	20°C (68°F)	11 to 15 Ω

NG → **Go to step 3**

OK

2 CHECK WIRE HARNESS (TRANSMISSION WIRE - ECM)



(a) Disconnect the E6 ECM connector.
(b) Measure the resistance of the wire harness side connector.
Standard resistance

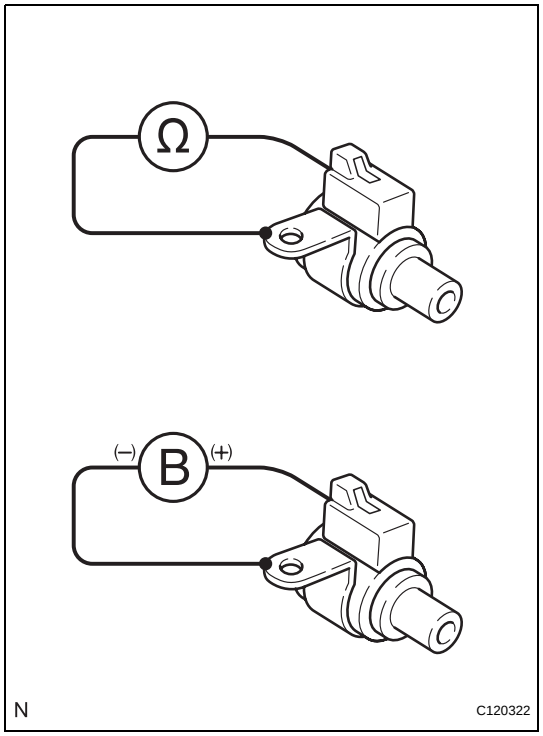
Tester Connection	Condition	Specified Condition
E6-8 (S2) - Body ground	20°C (68°F)	11 to 15 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE ECM

3 INSPECT SHIFT SOLENOID VALVE S2



(a) Remove the shift solenoid valve S2.
(b) Measure the resistance between the solenoid valve terminal and solenoid valve body.
Standard resistance:
11 to 15 Ωat 20°C (68°F)
(c) Connect the battery's positive (+) lead to the terminal of the solenoid connector, and the negative (-) lead to the solenoid body.
(d) Check the operating noise of the solenoid valve.
OK:
Solenoid makes operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE S2**

OK

REPAIR OR REPLACE TRANSMISSION WIRE

AX